3D Printing Glossary

Terminology	Meaning
Numerical	
3D Bio Printing	3D bioprinting is the process of creating cell patterns in a confined space using 3D printing technologies, where cell function and viability are preserved within the printed construct.
3D Model	A three dimensional design usually produced using various 3D modeling softwares like CATIA, CREO, SOLIDWORKS
3D Printing	Process of creating three dimensional object by depositing material layer by layer
3D Scan	A process by which the shape and texture of real world object is captured and displayed as 3D Model
3D Bioplotter	Well reputed 3D BioPrinting machine from Envisiontec.
3Doodler	Is a kind of 3D Pen that can be used to draw three dimensional objects
3D Sand Casting	Sand casting is a metal casting process characterized by using sand as the mold material
A	
Additive Manufacturing	Process of creating three dimensional object by depositing material layer by layer
ABS	A popular thermoplastic material heavily used in 3D Printing
Acetone	An organic solvent used to dissolve left over filament in nozzle for unclogging the nozzle and also for smoothing the ABS printed object surface
AMF	Additive Manufacturing File Format (AMF) is an open standard for describing objects for additive manufacturing processes such as 3D printing.
Alumide	Alumide is a material used in 3D printing consisting of nylon filled with aluminum dust, its name being a combination of the words aluminum and polyamide. The printed objects have metallic look
ABS Glue	ABS Glue is made by adding bit of acetone to the ABS filament. This is used to stick the 3D Print to the build plate
All Metal Hot End	A nozzle design that can go upto very high temperature of 400 degrees C
Anisotropic	Object having physical property that is different in different directions
Amorphous	Without a clearly defined shape or form
B	
Build plate	Build plate is the platform on which material is deposited layer by layer
Build platform	Same as build plate
Build Volume	Build volume = Printer Length x Printer Width x Printer Height
Bridges	Printing horizontal layers in air without support.To achieve good quality for bridges, it is recommend to reduce printing speed and printing temperature
Binder Jetting	Is a 3D Printing process where binder is jetted after each layer to glue it to the next layer
Blender	An open source 3D modeling software
Bed	Platform on which material gets extruded
Biopolymer	Biopolymers are polymers produced by living organisms. Since they are polymers, biopolymers contain monomeric units that are covalently bonded to form larger structures.
BuildTAK	Is a sheet that is placed on build plate before extruding the material to avoid warping of printed objects
Brim	A brim is attached to a model and extends outward. Brims typically have several outlines and may be a few layers tall. Brims are often used to stabilize small parts of a model, such as legs of a table, because brims help these areas stay connected to the print bed.
Build Time	Time it takes to print the object as per the parameters defined in slicing software
C	
CAD / CAM	Computer Aided Design / Computer Aided Machining
Catia	Popular 3D Modeling software
CLIP	Continuous Liquid Interface Production
CNC Machining	CNC Machining is a process used in the manufacturing sector that involves the use of computers to control machine tools.
CAE	Computer-aided engineering (CAE) is the broad usage of computer software to aid in engineering analysis tasks like Finite Element Analysis
Curing	Curing is a process of hardening photopolymers through UV light
Crystalline	A crystal or crystalline solid is a solid material whose constituents are arranged in a highly ordered microscopic structure, forming a crystal lattice that extends in all directions.
CJP: ColorJetPrinting	A type of 3D Printing technology from 3D Systems, primarily for printing multi-color objects
D	
DLP: Digital Light Processing	A type of 3D Printing technology where photopolymers are cured using UV light
DMLS: Direct Metal Laser Sintering	A type of 3D Printing technology
E	
Extruder	It is a device that sends correct amount of filament to hot end
EBM: Electron Beam Melting	A type of 3D Printing technology which uses an electron beam instead of a laser or thermal printhead. EBM is often used for the production of incredibly dense metal parts
EOS	Industrial 3D Printing company well known for its metal 3D Printing
End Stop	3D Printer axes all need a datum (also known as home position or end-stop) to reference their movements.
F	

Fused Deposition Modeling (FDM)	A type of 3D Printing technology that uses heat to melt and extrude plastic filament onto the build plate
Filament	Is kind of plastic wires used in FDM 3D Printing
FabLab	It is a small scale workshop for digital fabrication
Flowrate	It is the volume of fluid which passes per unit time
Fixture	Used to hold a workpiece during either a machining operation or some other industrial process.
G	
G-Code	G-code is the common name for the most widely used numerical control (NC) programming language. It is used mainly in computer-aided manufacturing to control automated machine tools.
Glass Transition Temperature	Glass Transition Temperature (Tg) is the temperature region where the polymer transitions from a hard, glassy material to a soft, rubbery material.
H	
Hardening	Harden (make an object toughen) generally by using heat treatment
Heated Bed	Heated build platform (also called heated bed) improves printing quality by helping to prevent warping. As extruded plastic cools, it shrinks slightly. Heated beds usually yield higher quality finished builds with materials such as ABS and PLA.
Heated Build Chamber	Heated build chamber also impoves the printing quality by maintaining the constant temperature in the chamber thereby avoiding cracks
HIPS	High Impact Polystyrene is a type of 3D Printing filament
Hot End	Hot End is the device that melts the filament and extrudes the molten filament on build plate
Hydrogel	A hydrogel is a network of polymer chains that are hydrophilic. Hydrogels are highly absorbent natural or synthetic polymeric networks.
I	
Infill	Material that is used to fill in the gaps / holes
Injection Molding	The plastic injection moulding process produces large numbers of parts of high quality with great accuracy, very quickly.
Inkjet Bioprinting	Having a physical property which has the same value when measured in different directions
Isotropic	An object having a physical property which has the same value when measured in different directions.
J	
Jig	Used to hold and guide a workpiece during either a machining operation or some other industrial process.
K	
Kapton Tape	A kind of tape used to avoid product warping during printing process. esp. for ABS material
L	
Layout	The way in which the parts of something are arranged or laid out.
Layer Height/Slice Thickness	Height of each layer that gets deposited on the build plate
Layer Thickness	Same as layer height / slice thickness
LOM: Laminated Object Machining	Laminated object manufacturing (LOM) is a RP system where layers of adhesive-coated paper are used to build a 3D model
Linear Guide	Used for movement across an axis (X, Y and Z). Meant for higher accuracy
Linear Rail	Used for movement across an axis (X, Y and Z)
LENS: Laser Engineered Net Shaping	Laser Engineered Net Shaping is an additive manufacturing technology developed for fabricating metal parts directly from CAD model using metal powder injected into a molten pool created by a focused, high-powered laser beam
LCF: Laser Cladding Forming	It is a type of additive manufacturing technology. During the process of laser cladding forming, a high power laser beam is focused onto the substrate to create a molten pool, metal powders are simultaneously injected into the focal zone by the powder delivering nozzles and then melted and rapidly solidified.
M	
Monomer	A molecule that can be bonded to other identical molecules to form a polymer.
Melting Point	The temperature at which a given solid will melt.
Metal Powder	Generally used Metal Laser Sintering
Micron	A unit of measurement. Usually 0.001 mm
MJP: Multi-Jet Printing	Another term of Poly Jet Printing
MJF: MultiJetFusion	Proprietary 3D Printing technology developed by HP
N	
NEMA	National Electrical Manufacturers Association offers standards for various products like Stepper Motors
Nylon	Kind of synthetic polymers that can be melt-processed into fibers, films or shapes.
Nozzle	The metal tip where plastic material gets melted and extruded
Nozzle Diameter	Diameter of the nozzle from where material gets extruded
NPJ: Nano Particle Jetting	It is a metal inkjet 3D Printing process where nano particles suspend in liquid are jetted and later sintered
O	
OBJ	A kind of 3D Printing file format
Overhang	A part of something that extends or hangs over something else. Supports are used to print overhangs
OpenSCAD	Software for creating solid 3D CAD objects

Organovo	calls itself a regenerative medicine company
P	
Photopolymerization	Process of changing the properties of photopolymer by exposing it to light
PLA	PolyLacticAcid is a type of 3D Printing filament made out of corn starch
Polyamide	A synthetic polymer of a type made by the linkage of an amino group of one molecule and a carboxylic acid group of another, including many synthetic fibres such as nylon.
PJP : Polyjet Printing	PolyJet 3D Printing works similarly to inkjet printing, but instead of jetting drops of ink onto paper, PolyJet 3D Printers jet layers of curable liquid photopolymer
Printing Resolution	Layer height in micrometers at which 3D Printing happens
Printing Speed	Speed at which hotend moves while extruding the filament.
PC	Polycarbonates (PC) are a group of thermoplastic polymers containing carbonate groups in their chemical structures. Polycarbonates are used in engineering applications
PEEK	Polyether ether ketone (PEEK) is a colourless organic thermoplastic polymer in the polyaryletherketone (PAEK) family, used in engineering applications.
PET	Polyethylene terephthalate, commonly abbreviated PET is the most common thermoplastic polymer resin of the polyester family
PVA	Polyvinyl alcohol is a water-soluble synthetic polymer.
PTFE	Polytetrafluoroethylene (PTFE) is a synthetic fluoropolymer of tetrafluoroethylene used for multiple applications
Plastic Jet Printing	Similar to FDM / FFF
Polyphenylsulfone (PPSF)	Polyphenylsulfone (PPSF or PPSU) is a type of high performance polymer usually consisting of aromatic rings linked by sulfone (SO2) groups.
Post Processing	Is a set of processes used to smooth out the 3D Printed object
PP: Plaster-based 3D printing	3D Printing using sandstone or plaster as the input material. This is popular for creation of miniatures.
PP: Polypropylene	Polypropylene (PP), also known as polypropene, is a thermoplastic polymer used in a wide variety of applications including packaging and labeling
Q	
R	
Resolution	Layer thickness usually defined in micrometers
Raft	A Raft is a horizontal latticework of filament that is located underneath your part. Rafts are primarily used with ABS to help with bed adhesion. Rafts are also used to help stabilize models with small footprints, or to create a strong foundation on which to build the upper layers of your part.
Rapid Prototyping	Rapid prototyping is a group of techniques used to quickly fabricate a scale model of a physical part or assembly using three-dimensional computer aided design (CAD) data
RepRap	Open source rapid prototyping system that is capable of producing its own parts and can therefore be replicated easily.
Rhinoceros	Rhinoceros is a commercial 3D computer graphics and computer-aided design application software
RAMPS	RepRap Arduino Mega Pololu Shield
Resin	A solid or liquid synthetic organic polymer used as the basis of plastics, adhesives, varnishes, or other products.
S	
Slicing	Process of diving a 3D model into multiple layers for printing
STL	STL (STereoLithography) is a file format native to the stereolithography CAD software created by 3D Systems. It is well known file format for 3D Printing
Supports	Supports are used when models have steep overhangs or unsupported areas.
Shells	Shell represents an outer wall of a 3D Print
Sculptris	Well known 3D modeling software used for sculpting
SDL : Selective Deposition Lamination	Selective Deposition Lamination is a 3D printing process using paper.
Sketchup	Well known 3D modeling software
SLS: Selective Laser Sintering	A type of 3D Printing process where laser is used sinter powder particles
SolidWorks	Well known 3D modeling software
Steel 3D printing	3D Printing of Steel powder
SLA: Stereolithography	A type of 3D Printing process where laser is used to cure a tank of liquid resin
SVG (Scalable Vector Graphics)	Scalable Vector Graphics (SVG) is an XML-based vector image format for two-dimensional graphics with support for interactivity and animation.
Stepper Motor	A stepper motor (or step motor) is a brushless DC electric motor that divides a full rotation into a number of equal steps. The motor's position can then be commanded to move and hold at one of these steps without any feedback sensor (an open-loop controller), as long as the motor is carefully sized to the application.
Support Material	Support material is used to hold the suspend parts of a 3D Printed object
SLM: Selective Laser Melting	Selective laser melting (SLM) is a rapid prototyping technique designed to use a high power-density laser to melt and fuse metallic powders together.
Sintering	Join powder into a solid porous mass by heating
Skirt	A skirt is an outline that surrounds your part but does not touch the part. The skirt is extruded on the print bed before starting to print the model. Skirts serve a useful purpose because they help prime the extruder and establish a smooth flow of filament.
Surface Finish	Surface finish, also known as surface texture, is the characteristics of a surface. It has three components: lay, surface roughness, and waviness.
T	
Thermoplastic	having the property of softening or fusing when heated and of hardening and becoming rigid again when cooled
Titanium 3D Printing	3D Printing using Titanium powder

Triple Jetting	Is a Stratasys process where 3D Printers also jet a gel-like support material specially formulated to uphold overhangs and complex geometries during the printing process.
Tissue Engineering	Tissue engineering is the use of a combination of cells, engineering and materials methods, and suitable biochemical and physicochemical factors to improve or replace biological tissues.
Tank (Resin)	Is a holder of resin in SLA / DLP 3D Printing
Tensile Strength	the strength of material expressed as the greatest longitudinal stress it can bear without tearing apart
TPP: Two-photonpolymerization	A new approach to micromachining and can be considered the next level to SLA. Very precise 3D models can be created within a very short span of time
U	
Ultem	Polyetherimide is an amorphous, amber-to-transparent thermoplastic with characteristics similar to PEEK
UV Light	Ultraviolet (UV) is an electromagnetic radiation with a wavelength from 10 nm (30 PHz) to 400 nm (750 THz) generally used for curing in DLP process
V	
VAT	a large open vessel for holding or storing liquids. In 3D Printing, generally for holding resin in DLP or SLA process
W	
Warping	Is bending of an object on the edges due to material shrinkage while 3D Printing
Wall Thickness	thickness of the wall or the outer part of the 3D object
X	
X-Axis	X-Axis of a 3D Printer
Y	
Young's Modulus	Young's Modulus is stress / strain. It is measure of stiffness of a solid material
Yield	Stress at which material starts deforming plastically
Y-Axis	Y-Axis of a 3D Printer
Z	
Z-Axis	Z-Axis of a 3D Printer
Please get more info. by contacting us through info@in3dtec.com	